

October 2006



Volume 11 No. 10

# Report to STAKEHOLDERS

<http://www.edwards.af.mil/penvmng/index-toc.html>

3

Edwards Air Force Base promoted Desert Safety Day with an inaugural event.

6

The Restoration Advisory Board (RAB) held a meeting for the public in August. Read about the topics they covered.



**WE'VE GOT YOU SURROUNDED** — These juvenile tortoises surround a toy model of an F-22. Juvenile tortoises fall prey to a number of predators because of their soft shells and small size. Edwards Air Force Base's headstarting program hopes to give them a head start for survival.

## Biologists aim to give tortoises a head start

**E**dwards Air Force Base (AFB) biologists hope that as in Aesop's fable, slow and steady will help the desert tortoise win the race against shrinking populations. Preliminary studies in the headstarting program show promise.

When biologists at Edwards AFB decided to launch the long-term headstarting program for the conservation of the desert tortoise, they knew it would be a slow and steady journey toward finding a way to reverse declines in populations of a species heading toward extinction.

The headstarting program was launched three years ago. It involves taking wild female tortoises carrying eggs to the headstarting pens so they lay their eggs in protected burrows. The mothers are tested for disease and lay their eggs in the pen designated for their disease status and type. Before they are released at the location of their capture, biologists place radio tracking devices on the tortoises to find and bring them in year after year to lay eggs in the headstarting pens.

See *TORTOISES*, page 4

Q.

What causes a large increase in rodents such as mice, ground squirrels and rabbits in the area in a given year? Is it due to lack of predation?

A.



**ABUNDANCE** — This picture shows desert cottontail rabbits outside of Environmental Management in the afternoon. Populations have increased noticeably this year due to rainfall last year.

Large animal populations in the environment occur based on population cycles. Rabbits for example, tend to show an increase in population every seven or 10 years.

Another reason for the abundance you've seen this year is due to the large amount of rainfall that the base received last year. Large rainfalls provide lush vegetation for these types of animals.

This year is most directly related to natural population cycles and plentiful food brought on by favorable weather.

RTS

# Stakeholders forum

If you have a question about the Edwards Air Force Base Environmental Management program, you may address it to Stakeholders Forum, Attn: Gary Hatch or Miriam Horning, 5 E. Popson Ave., Edwards AFB, CA 93524-8060, or send e-mail to:

9abw.pae@edwards.af.mil

## Next RAB Meeting

**Nov. 16, 2006**

**5:30 p.m.**

**Lancaster**

**Essex House**

**44916 10th Street West**

**The public is invited.**

*Report to Stakeholders* is a publication of the Edwards AFB Environmental Management Division. Its purpose is to inform and educate the public, base workers and residents about continuing Environmental Management efforts at Edwards AFB. It currently has a circulation of 6,000, including about 2,000 subscribers.

Contents of the *Report to Stakeholders* are not necessarily the official view of, or endorsed by, the U.S. government, the Department of Defense, or the Department of the Air Force.



Commander 95th Air Base Wing..... Col. H. Brent Baker, Sr.  
Base Civil Engineer..... James Judkins  
Division Chief, Environmental Management..... Robert Wood  
Branch Chief, Environmental Restoration..... Ai Duong  
Branch Chief, Environmental Conservation..... Gerald Callahan  
Branch Chief, Environmental Quality..... Robert Shirley

All photos are property of the Air Force.

Comments or questions should be directed to: Gary Hatch, 95 ABW/PAE, 5 E. Popson Ave., Bldg. 2650A, Edwards AFB, CA 93524-8060, (661) 277-1454. E-mail: 95abw.pae@edwards.af.mil

*Report to*  
**STAKEHOLDERS**







**SAFETY** — Environmental Management was one of the organizations that promoted Desert Safety Day. Above, biologists talk about what types of snakes can be found on base and what to do if you come in contact with one.

# Desert *Safety* Day informs base residents, personnel

**B**ooths, displays and information stations designed to give Team Edwards the summer lowdown on the high desert — how to live, work and play safely in this sometimes hostile environment — marked the base's inaugural Desert Safety Day, held at the Base Exchange food court Aug. 2.

Event organizers hope to make this an annual event, holding it near Memorial Day next year to coincide with the kickoff of the 101 Critical Days of Summer.

"The event was more successful than anticipated," said Robert Wood, Environmental Management Division chief. "Nearly 250 participated, including the base installation commander. This event was an effective way to get the message about safety out to base residents and personnel."

The idea for Desert Safety Day came through meetings between the Air Force Flight Test Center Safety Office and Environmental

Management, said event organizer Rebecca Hobbs, a base cleanup program manager from Environmental Management who was a safety engineer before coming to Edwards AFB.

"Being informed is being prepared. We are always looking for ways to make it easy for people to receive the information they need," Hobbs said. "We invited base experts on different aspects of desert safety to participate. They helped ensure base workers and residents understand how to enjoy the desert safely, while also keeping the desert safe."

Nine base organizations teamed up to offer advice on variety of timely tips for the event:

- Public Health – discussed West Nile virus and summertime food safety;

See *SAFETY*, page 7





### TAKING A WALK

*This little fellow is about the size of a half dollar and roams the headstarting pens at the Juvenile Tortoise Edwards AFB Hatchery Study Site in pursuit of food.*

## TORTOISES

From page 1

Once hatched, the baby tortoises are weighed, measured and numbered. Then they are traced back to a specific mother where the data is recorded for future studies on desert tortoise genetics. The baby tortoises remain in the headstarting pens until biologists release them consistent with their studies.

Whereas a hare can begin reproducing at less than a year old, the desert tortoise can take 15 to 20 years before it can begin reproducing.

Slow and steady, it is estimated that two out of every 100 hatchlings survive to adulthood in the wild. This is because juvenile tortoises are susceptible to numerous predator species and environmental factors.

Biologists running the desert tortoise headstarting program aim to improve the odds for tortoises reaching adulthood and grow tortoises that will eventually add to tortoise breeding populations.

“We are looking for the best age to release the juveniles with the greatest chance of survival while avoiding other possible environmental factors like the potential imprint effect, which keeps the tortoise from

leaving because it has become used to the pens or the area,” said Mark Bratton, lead contract biologist and one of the overseers of the desert tortoise headstarting program. “Imprinting is when the tortoise gets used to the pens and when released does not move away from the pens like a normal animal would.”

“We are trying a number of things to find the best solution for this problem like a fast release versus a slow release and an irrigation study. Each study has variations to monitor the effect our program might have on the tortoises,” Bratton said.

The fast release involves growing tortoises for roughly one year and releasing them around the pen where they were born. This fast release aims to give the tortoises one year to grow without gaining the imprint effect.

The slow release involves growing the animals in the pens for a longer time, allowing them to get larger and for their shells to harden, giving them better protection from predators. This also seems to increase the chances the tortoises have to reach adulthood and sexual maturity. But, it is thought that this method of release leaves an imprint effect on the tortoises.

The irrigation study involves water-

ing plants inside the pen to lengthen the amount of time the plants are available for the baby tortoises to eat. This process gives the tortoises the chance to grow faster than tortoises of the same age in nonirrigated pens.

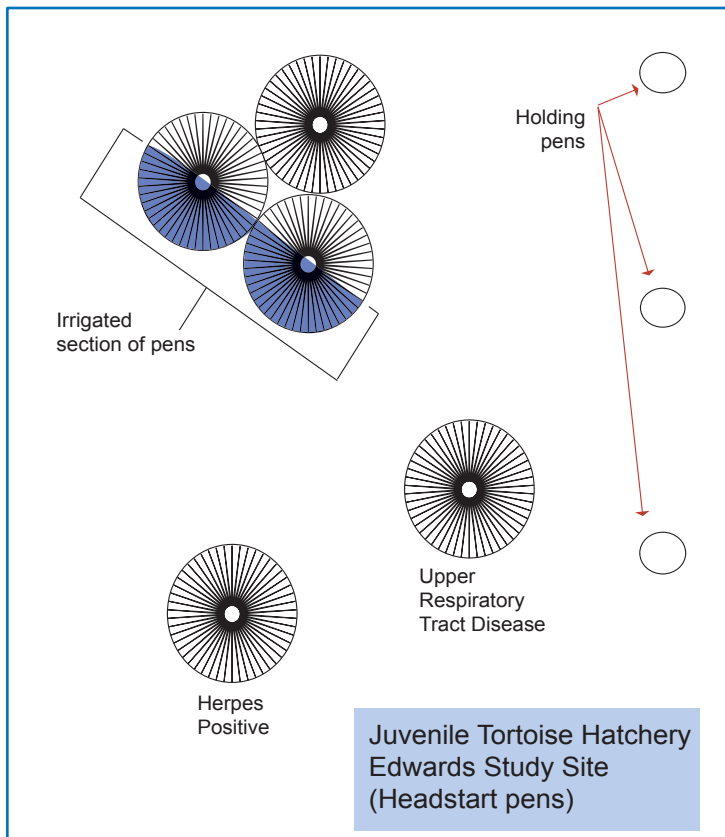
The promise of this study is to find middle ground between the fast and slow release studies, where biologists can grow a tortoise large enough to have the greatest chance of survival while minimizing the chance for the imprint effect. On the face of this study, irrigation produces larger tortoises in shorter time.

“In the headstarting program, we are looking at five to seven years of growing a single tortoise to a large enough size where its shell is nearly predator proof and monitoring it for another 10 years until sexual maturity to see if it reproduces and adds to the breeding population,” Bratton said.

“We are not sure when it is best to release the tortoises, but we are looking at our studies and think that the best age for release will fall sometime between one- and seven-years-old,” Bratton said.

Currently, the headstarting program is growing 52 juvenile tortoises from previous years and this year. The female tortoises brought in this year laid about 85 eggs that





Not to scale

**GROUND S** — A diagram of the Juvenile Tortoise Hatchery Edwards Air Force Base Study Site where the headstarting program is located. Female tortoises are placed in the holding pens to be tested for disease and are placed in the respective pen to lay their eggs before being returned to the wild. The hatchlings are raised in the pens and released according to what study they are a part of.

are expected to hatch this season.

“We have five pens that make up the headstarting pens. There are two pens designated for the eggs of diseased mothers, one for herpes positive mothers and the other for upper respiratory tract disease positive mothers. The other three pens are for the eggs of nondiseased mothers. The three nondiseased pens are connected with a section that is boarded off and watered as a part of one of our studies,” Bratton said. Young tortoises are placed in irrigated and non-irrigated sections to compare their growth rates.

Since the program’s beginnings, 16 one-year-old tortoises from diseased mothers have been released as a part of the fast release study. Next spring, biologists will release a few one-year-old tortoises from nondiseased mothers. This is to learn if there are differences in the survivability of a tortoise from a diseased mother and a nondiseased mother.

“Headstarting is an important tool for conserving the desert tortoise, but we won’t see immediate results,” Bratton said, “We still need to protect existing and future tortoise populations in many other ways such as protecting existing habitat, decreasing poaching or illegal collection of this animal as a pet, decreasing the release of captive tortoises into the wild populations, fencing major roads or highways so that tortoises don’t get run over by vehicles and educat-

ing the general public about tortoises.

“If we don’t address some of these underlying problems that first caused the tortoise to be listed under the Endangered Species Act, it won’t matter if we can grow tortoises or not,” Bratton said.

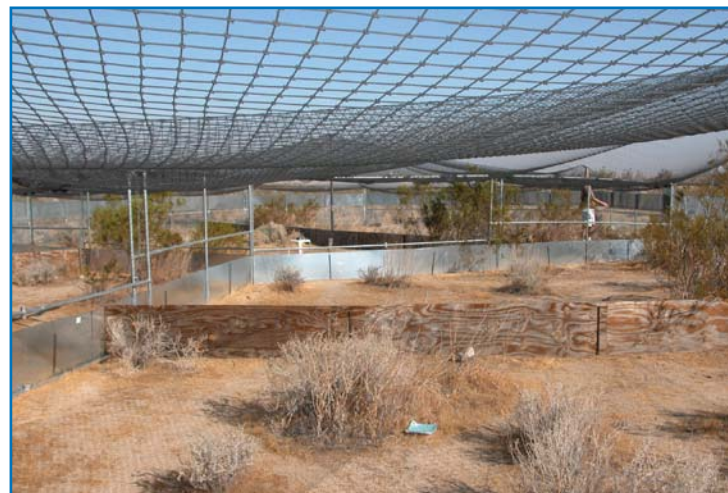
Because of severe declines in the tortoise population, biologists at Edwards AFB look to find a way to conserve the species that was federally listed as threatened in 1991. The overall goal of the program, to give tortoises the greatest chance for survival into adulthood and to begin reproducing, will not be seen for at least another decade.

Biologists at Edwards AFB can look to the tale of the tortoise and the hare and find a way to give the reptile that embodies the phrase “Slow and Steady,” a headstart in its race for survival.

RTS



**PENS** — The headstarting program pens. These pens provide protection for tortoise hatchlings from predators. Black netted ceilings, gated exteriors with a slick metal panel and bait stations keep birds, squirrels and ants from harming the tortoises. There are two single pens that are 2,900 square feet each and one tri-pen that is 8,900 square feet.



**INSIDE** — This is the inside of one of the pens. The pens are built on critical desert tortoise habitat and the land is kept as natural as possible.

# Restoration Advisory Board Meeting Highlights

The following report highlights the latest quarterly meeting of the Restoration Advisory Board (RAB) held Aug. 17 in Rosamond, Calif.

**Site 19 *In Situ* Bioremediation Whey Powder Treatability Study** – David Porter gave a presentation on the temporary results of the whey powder that is being injected into groundwater at Site 19, located northeast of the Main Base flightline on Operable Unit 1. The purpose of the presentation was to communicate to the public what injecting whey powder into groundwater is able to do. At Edwards AFB, the biostimulation of the native microbes from the whey powder degrades trichloroethene (TCE) into compounds like 1,2-dichloroethene (DCE), vinyl chloride and eventually ethene. The Environmental Restoration Program (ERP) is also evaluating the potential for this type of technology at other sites on base. Preliminary results of this technology include a good distribution from the injection point, good reduction of TCE, a sharp increase in DCE, little production of vinyl chloride or ethene and no increase in the *Dehalococcoides* bacteria. Next for Site 19 are one or two more whey powder injections to find out if ERP engineers can achieve complete dechlorination to vinyl chloride and then ethene with nutrients alone.

The next meeting of the RAB will be Nov. 16, 2006 at 5:30 p.m. in Lancaster, Calif., in the Lancaster II room at the Essex House. The public is invited to attend.

RTS



**PRESENTER** — David Porter, right, gave a presentation at the Restoration Advisory Board (RAB) on the Site 19 *in situ* bioremediation whey powder treatability study.



## DISCUSSION

Col. Bryan Gallagher, left, replaces Col. H. Brent Baker Sr., as the RAB co-chair. He talks to John Harris, California Environmental Protection Agency/Department of Toxics Substances Control regulator, at the Rosamond RAB meeting held in August.



# SAFETY

From page 3

- Bioenvironmental Engineering – provided tips on heat stress, its signs and symptoms and treatment;
- Safety – discussed items that a person should keep in the car and how to protect from flash floods;
- Environmental Management – discussed protection from venomous snakes; what to do with injured wildlife and the importance of protecting the lakebed;
- Civil Engineering – discussed mosquito abatement and pest management;



**INTERESTED** — Base children also participated in the event to find out about safety in the desert. The children visited the Fire Department's booth and received fire hats for their interest.



**HEAT STRESS** — Airman Rolando Gudiel Sanchez of Bioenvironmental Engineering shows a wet-bulb globe temperature monitor, which allows Bioenvironmental to determine heat stress levels.

- Muroc Green Knights Motorcycle Club – discussed motorcycle safety;
- APET – provided tips on keeping pets safe in the desert;
- Range Safety – discussed the importance of not touching shiny objects found in the desert because they might be unexploded ordnance; and the
- Fire Department – discussed fire safety information.

For additional information on safe recreational and work practices, contact the Air Force Flight Test Center Safety Office at 277-3316.

RTS



## RELEASE

A long-eared owl pauses before it takes flight. The bird is one of two that was released at Edwards AFB's Branch Memorial Park in mid-July by APET and other volunteers. Long-eared owls are considered a California Species of Special Concern. The owls were released after being rehabilitated at the Ojai Raptor Center. Volunteers in the effort included Scott and Kelly Glaser of APET, Milton and Susan Riley and Tom Denniston.

☐ New subscription  
☐ Change of address  
☐ Cancel subscription
**Mail to:**

95 ABW/PAE  
 RTS Subscription  
 5 E. Popson Ave., Bldg. 2650A  
 Edwards AFB, Calif., 93524-8060

Name \_\_\_\_\_

Organization \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

**RAB Members****BORON**

Hugh Jamison (760) 762-6658 Home  
 hbj@ccis.com

**CALIFORNIA CITY**

Bob Smith (760) 373-4317 Home  
 bsmith@ccis.com

**LANCASTER**

Peter Zorba (661) 723-6234 Work  
 pzorba@cityoflanaster.org  
 ALTERNATE: Frank Roberts (661) 723-6018 Work

**MOJAVE**

Victor Yaw (661) 824-2886 Home  
 vyaw@charter.net (661) 275-4296 Work

**NORTH EDWARDS**

Ruby Messersmith (760) 769-4357 Home  
 messersmith2@verizon.net

**ROSAMOND**

David Newman (661) 722-6433 Work  
 dnewman@ispwest.com (661) 256-8209 Home  
 ALTERNATE: Leslie Uhazy (661) 722-6417 Work  
 luhazy@avc.edu

**EDWARDS AFB****Housing**

Michelle Tucker (661) 258-9030 Home  
 mztucker@usa.net

**Main Base Air Base Wing**

David Schory (661) 277-4811 Work  
 david.schory@edwards.af.mil

**Main Base Test Wing**

Dean Baker (661) 277-5649 Work  
 dean.baker.ctr@edwards.af.mil

**NASA Dryden**

Gemma Fregoso (661) 276-2817 Work  
 Gemma.Fregoso-1@dfrc.nasa.gov  
 William Brandweiner (661) 276-3339 Work  
 William.Brandweiner@dfrc.nasa.gov

**North Base**

Vacant

**South Base**

Julie Newton (661) 275-0551 Work  
 julie.newton@edwards.af.mil

**AF Research Lab/  
Propulsion Directorate**

Milton McKay (661) 275-5191 Work  
 milton.mckay@edwards.af.mil

Published data and documents relating to the Environmental Restoration Program are available for public review in information repositories at four locations. The current information repositories are located in the cities of Boron, Lancaster and Rosamond, as well as Edwards AFB. They are updated when new documents are released.

If you have any questions about information in the repositories, please contact Gary Hatch, Environmental Public Affairs at (661) 277-1454 or through e-mail at 95abw.pae@edwards.af.mil.



Location	Days and Hours of Operation	
<b>Edwards AFB Library</b> 5 W. Yeager Blvd. Building 2665 Edwards AFB, Calif. (661) 275-2665	Mon-Thurs	9:30 a.m. - 7 p.m.
	Fri	9:30 a.m. - 6 p.m.
	Sat & Sun	10:30 a.m. - 6 p.m.
<b>Kern County Public Library</b> Wanda Kirk Branch 3611 Rosamond Blvd. Rosamond, Calif. (661) 256-3236	Tue & Wed	Noon - 8 p.m.
	Thurs-Sat	10 a.m. - 6 p.m.
<b>Los Angeles County Public Library</b> 601 W. Lancaster Blvd. Lancaster, Calif. (661) 948-5029	Mon-Wed	10 a.m. - 8 p.m.
	Thurs & Fri	10 a.m. - 5 p.m.
	Sat	11 a.m. - 5 p.m.
<b>Col. Vernon P. Saxon, Jr. Aerospace Museum</b> 26962 Twenty Mule Team Road Boron, Calif. (760) 762-6600	Mon-Sun	10 a.m. - 4 p.m.



95 ABW/CEVR  
 5 E. Popson Ave., Bldg. 2650A  
 Edwards AFB, CA 93524-8060  
 Official Business

Standard Rate  
 U.S. Postage  
**PAID**  
 Edwards AFB CA  
 Permit No. 3

**Report to Stakeholders Staff**

**EDITOR and  
WEB DESIGN**  
 Miriam Horning

**WRITING and  
DESIGN SUPPORT**  
 Vanessa Green  
 Patti Kumazawa  
 Darlene Norwood  
 Leilani Richardson  
 Paul Rogers



ADDRESS SERVICE REQUESTED